

120 as being anticipated by U.S. Patent No. 4,314,814 to *Deroode*.

Claims 12 and 20 have been canceled without prejudice.

The subject-matter of claim 12 has been organized into a new claim 36. Claim 52, which discloses an apparatus designed to carry out the process of claim 36, has been added.

The invention disclosed in claims 36 and 52 differs from that disclosed in US 4,314,814, to *Deroode*, because *Deroode* does not teach to lay a transfer support over an artefact to be decorated and along selected portions of the periphery thereof. It does not teach to suck air through a plurality of holes of the work bench to cause the transfer support to adhere to the work bench at least at these selected portions.

In fact, during the sucking step, the transfer support according to *Deroode* does not contact the work bench, or bracket, (30) along the periphery of the artefact (10) to be decorated. As clearly shown in Figures 7 and 8 of *Deroode*, the bracket (30) has the same plan dimensions as the artefact (10), which implies that the transfer support (15) cannot contact the bracket (30) along the periphery of the artefact (10).

To obtain contact between the transfer support (15) and side surfaces (11, 13) of the artefact (10), *Deroode* teaches to move the bracket (30) upward, thus bringing the upper portion of the artefact (10) into contact with the transfer support (15), and to suck air in the vacuum chest (20), thus lowering the transfer support (15) against the side surfaces (11, 13) of the artefact (10).

This system has several disadvantages. First, it requires a number of moving parts, for example the bracket, that alternatively brings the artefact into contact with the transfer support and removes the artefact therefrom. Secondly, it is necessary to create the vacuum in the vacuum chest, i.e. to suck a relatively great volume of air, to bring the transfer support in contact with the side surfaces of the artefact. Since all these operations have to be made synchronously, it is necessary to provide control means which actuates the suitable parts of the system at the proper time. Thus, the system disclosed in *Deroode* is quite complicated and energy-wasting.

The process disclosed in claims 36 and 52 of the present application is much simpler than that according to *Deroode*. According to claims 36 and 52, the transfer support is laid over the artefact and along selected portions of the periphery thereof,

so that when air is sucked through the holes of the work bench, the transfer support adheres to the work bench at least along said selected portions. When adhering to the work bench along the selected portions, the transfer support comes into contact with the side surfaces of the artefact which have to be decorated.

Thus, the sole sucking action is sufficient to make the transfer support adherent to the artefact not only along the upper surface of the artefact, but also along the side surfaces thereof which have to be decorated. No moving parts are required to bring the artefact in contact with the transfer support, since the transfer support encircles the side surfaces of the artefact when portions of the transfer support surrounding the periphery of the artefact are sucked in contact with the work bench.

Because of the contact between the transfer support and the work bench along the selected portions of the periphery of the artefact, the invention disclosed in claims 36 and 52 allows energy to be saved if compared with the invention disclosed in *Deroode*. In fact, according to claims 36 and 52, to make the transfer support adherent to the side surfaces of the artefact it is sufficient to suck air through a plurality of holes provided in the work bench along the above mentioned selected portions, instead of sucking a large quantity of air contained in the vacuum chest.

No suggestion can be found in *Deroode* concerning providing a work

bench having a plurality of holes through which air can be sucked, so that the transfer support is made adherent to the work bench at least somewhere along the periphery of the artefact to be decorated. *Deroode* does not need such a work bench, since he uses a different system to make the transfer support adherent to the side surfaces of the artefact.

It is further observed on this point that in his last Office Action, the Examiner also stated that according to *Deroode* air is sucked through the work bench to make the transfer support adherent to the artefact, because column 6, lines 28-34 of *Deroode* shows a bracket which may be "porous or non-porous". However, it is clear that, if the bracket is non-porous, no air can be sucked through it. In addition, the mere statement that the bracket may be porous does not imply that air can be sucked through it. For example, a porous bracket can be made from a closed-cell material, or from a foam material in which the cells are not mutually communicating. In the latter cases, no air can be sucked through the bracket, even if it is a porous one.

Thus, the skilled person who reads *Deroode* and finds that the bracket can be made either from a porous or non-porous material, does not automatically think that air is sucked through the bracket to make the transfer support adherent to the artefact. The skilled

person may think, for example, that a porous material can be chosen for the bracket to obtain an easily deformable bracket. Such a deformable bracket would deform under the pressure exerted by the transfer support on the artefact, so that the artefact may reach a position in which the contact between the artefact and the transfer support is optimized.

Should *Deroode* mean that suction were to be applied through the bracket, he would have explicitly indicated that the bracket had channels or open cells suitable for allowing air to be sucked therethrough.

Thus, the applicant believes that claims 36 and 52 are patentable over *Deroode*. In addition the applicant believes that claims 38, 39, 41, 43, 48, and 50 which depend either directly or indirectly from claim 36 are patentable as well.

Furthermore, since none of the cited documents, either when taken alone or in combination, discloses the subject-matter of claims 36 and 52, it is believed that claims 36 and 52 are patentable over the above cited references taken either singly or in combination.

(2) The Examiner has rejected claims 14-16 and 30-34 under 35

U.S.C. 103(a) as being unpatentable over *Deroode* in view of *Fenzi*.

Claims 14-16 and 30-34 have been canceled without prejudice.

(3) The Examiner has rejected claim 19, under 35 U.S.C. 103(a) as being unpatentable over *Deroode* as set forth in section (1) above and in the alternative over the combined references in section (2) above.

Claim 46 substantially corresponds to claim 19 previously on file, and discloses the step of submitting the artefact and the transfer support to a first intermediate action at a temperature at which the transfer support is thermoformed. The Examiner states that it would be obvious to heat the artefact and the transfer support, since *Deroode* teaches to heat the transfer support prior to the contact with the artefact.

However, *Deroode* does not teach to heat the transfer support together with the artefact so as to thermoform the transfer support over the artefact. If the transfer support and the artefact wrapped therein are heated together until thermoforming, it is possible to obtain the artefact tightly wrapped by the transfer support. This allows the transfer support to exert a protective action in case the artefact is subsequently cooled and stored, waiting for a

future heating up to pattern transfer temperatures.

The artefact wrapped in the thermoformed transfer support can be subsequently re-heated to transfer the pattern on the artefact, without requiring a new sucking step, which allows time to be reduced in the second heating step.

Thus, the intermediate heating action disclosed in claim 46, being carried out up to the thermoforming temperature, provides a technical effect which is not disclosed nor envisaged in *Deroode*.

(4) The Examiner has rejected claim 18, under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent No. 4,314,814 to *Deroode* as set forth in section (1) above, or in the alternative over the combination in section (2) above or in further view of *Ito et al.*

The Applicant believes that claims 42 and 43, which substantially correspond to claim 18 previously on file, are novel and inventive over the prior art for the reasons cited in sections (1) and (2) above.

(5) The Examiner has rejected claim 17, under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent No. 4,314,814 to *Deroode* as set forth in section (1) above.

The Applicant believes that claims 40 and 41, which substantially correspond to claim 17 previously on file, are novel and inventive over the prior art for the reasons cited in sections (1) and (2) above.

(6) Claims 13 and 21 have been rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent No. 5,893,964 to Claveau in view of U.S. Patent No. 4,314,814 to Deroode.

Claims 13 and 21 have been canceled without prejudice. The subject-matter previously disclosed in claim 13 has now been re-drafted into new claim 35, and new independent claim 51 has been added. Claim 51 discloses an apparatus which is intended to carry out the process of claim 35.

The applicant believes that independent claims 35 and 51 are written to overcome the Examiner's objections concerning lack of patentability in view of Claveau and Deroode.

Claims 35 and 51 state that, the pattern to be transferred to the artefact is initially reproduced on the transfer support, since claims 35 and 51 recite that the artefact and the transfer support are heated "to transfer a pattern from said transfer support to said artefact". If the pattern were not reproduced on the transfer

support, it could not be transferred from the transfer support. Furthermore, claims 35 and 51 explicitly state that the envelope is formed from the transfer support and that the outlet from which air is sucked is defined by edge portions of the transfer support. On the contrary, according to Claveau, an envelope is formed from two superimposed membranes that are joined along respective edge portions. Two transfer supports are subsequently introduced in the envelope together with an artefact to be decorated, the artefact being interposed between the transfer supports so that the side of each transfer support bearing the pattern faces the artefact. The envelope is then sealed so as to leave an outlet along the edge portions of the membranes, and through this outlet, air is sucked to make the membranes, and the transfer supports in contact thereto, adherent to the artefact to be decorated.

It is further observed that, as shown in FIGS. 3-5, 9-14 of Claveau, the transfer supports have smaller dimensions than the superimposed membranes. Such transfer supports are therefore simply inserted in the envelope without being involved in the envelope formation. In addition, the outlet which is to be connected to the vacuum pump is made along edge portions of the membranes out of the region where the membranes contact the transfer supports. The skilled person who reads Claveau recognizes that the simultaneous presence of the membranes and of the transfer supports

may cause drawbacks affecting the decoration quality. In fact, since the transfer supports are detached from the membranes, when air is sucked between the membranes, relative displacement may occur between the transfer supports and the membranes. Thus, the position of the pattern transferred onto the artefact does not correspond to the desired position, which decreases the aesthetical appearance of the decorated artefact.

Furthermore, during the air suction step, wrinkles may be formed in the transfer supports, which produce even worse defects in the artefact decoration. It is observed that the operator cannot do anything to prevent such wrinkles from being formed or to eliminate them, because the membranes enclosing the transfer supports prevent the operator from accessing to the transfer supports to stretch them during operation.

The invention disclosed in claims 35 and 51 overcomes these drawbacks by forming the envelope directly from the transfer support from which the pattern is to be transferred to the artefact, and by sucking air directly from an outlet provided along edge portions of the transfer support. Since the membranes are no longer required, the risk of relative displacement between the membranes and the transfer supports no longer exists. Furthermore, if wrinkles are formed during the air sucking step, the operator

may remove said wrinkles by directly acting on the transfer support.

Since no mention can be found in *Claveau* concerning the possibility of removing the membranes and forming the envelope directly from the transfer supports, it is believed that the invention disclosed in claims 35 and 51 of the patent application in subject is different from that disclosed in *Claveau* and cannot be obviously derived from *Claveau's* teachings.

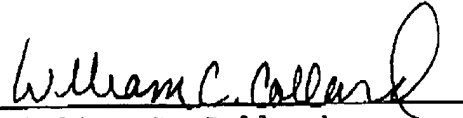
It is further observed that none of the prior art documents cited by the Examiner contains suggestions which could make the invention disclosed in claims 35 and 51 obvious for the person skilled in the art.

In particular, the skilled person desiring to improve the quality of transfer images which can be obtained by means of the method and apparatus disclosed in *Claveau*, would never look at the teachings coming from *Deroode*, because the latter patent solves a different technical problem. In fact, *Deroode* is concerned with the provision of a new decorating technique for spectacle frames obtained by injecting or casting material into a mould. Furthermore, even if the skilled person considered *Deroode*, he would not arrive at the invention of claims 35 and 51, because

Deroode relates to a different decorating process, in which the surface of the artefact to be decorated is brought into contact with a transfer sheet, and there is no need to enclose the artefact into an envelope. *Deroode* cannot teach to form an envelope directly from the transfer support, for the reason that no envelope is provided in *Deroode*. Thus, the applicant believes that claims 35 and 51 are patentable over the above references. For the same reasons mentioned above, it is further believed that claim 37, which corresponds to claim 13 previously on file, is patentable when read in the light of claim 35. In addition, for the above reasons, the applicant believes that claims 37, 40, 42, 44, 46, 47, and 49 which depend directly or indirectly from claim 35 are patentable as well.

Claims 12-21 and 30-34 have been canceled without prejudice. Claims 35-52 have been added. The applicant believes that the remaining claims are written to overcome the rejections of the Examiner. Accordingly, the applicant respectfully requests early allowance of the remaining claims.

Respectfully submitted,

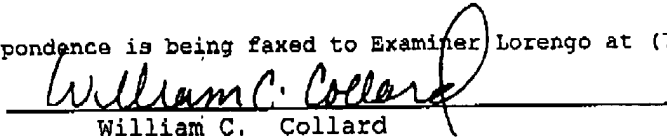


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I hereby certify that this correspondence is being faxed to Examiner Lorengo at (703) 872-9311 on December 16, 2002


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